Language of normativity and the normativity of language-use

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Overview

Abstract

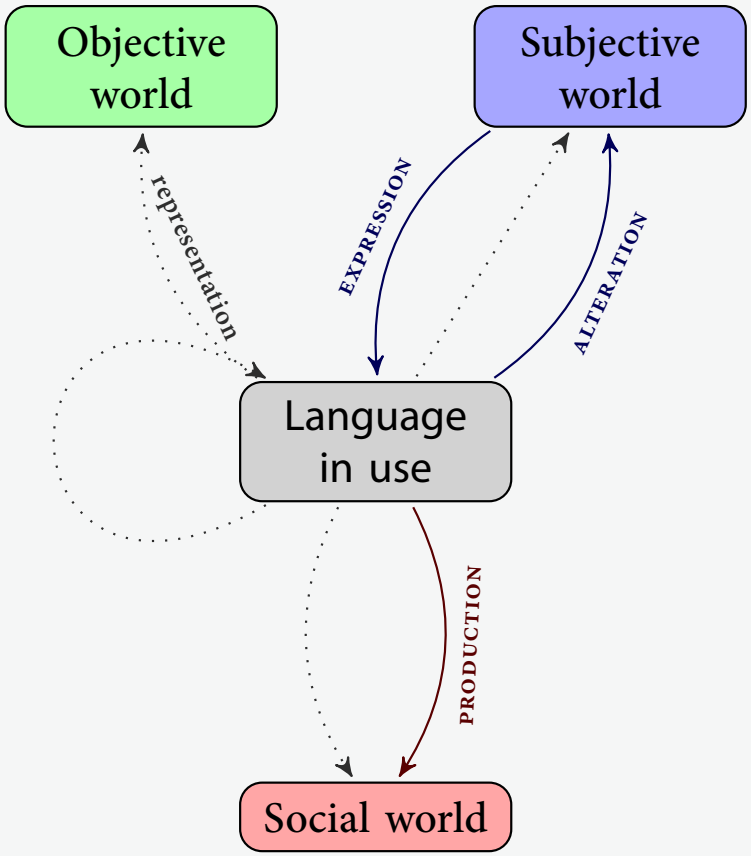
In this paper a typology of norms will be proposed in order to provide a conceptual framework for the research in logical pragmatics. The main conceptual distinctions that will be introduced include: 1. the difference between communication and non-communication norms, 2. the distinction between the one-actor communication norms and norms of communicative interaction, 3. the distinction between logical and extra-logical communication norms. The conceptual framework will be applied in the analysis of communicative interaction. The three main types of communication will be defined on the basis of their normative context, the different norms governing the communicative interaction. These types are: 1. trustful communication type, 2. argumentative type, and 3. hierarchical type. Some applications of the typology of communicative interaction will be outlined and argued for: 1. in philosophy of science regarding the criterion of scientific knowledge with respect to the dynamics of communicative interaction types; 2. in the philosophy of language as providing the basis for the critique for those theories that implicitly presuppose single type of communication; and 3. in philosophy of logic attempting to show that the standpoint according to which logic is the essence of language in use has certain advantage to other pragmatics-based approaches, most notably to normative pragmatics and illocutionary logic; 4. in deontic logic as the normativity of language-use is a source of the second-order norms for the norm-giving activity.

Caveat

- This talk presents an intermediate stage of the research. The research aims at developing a conceptual framework suitable for the description of communicative interaction.
- If the conceptual framework manages to achieve theoretical virtues, a formal system will be built. Nevertheless, some elements of the formal system to be developed will be introduced in a rudimentary form.
- The underlying philosophical hypotheses are:
  - the hypothesis on the inseparability of logic and ontology,
  - the hypothesis on the existence of specific logic corresponding to social ontology,
  - the hypothesis that the appropriate logic for social ontology is a “logic of language in use” or “logical pragmatics”.

The language of the language in use and its diverse effects

The relations between language in use and reality



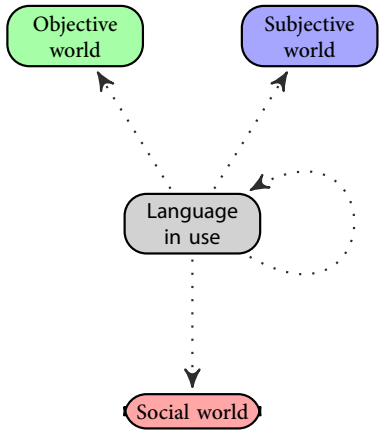
Relation	Key concepts	Formula
representation augmented with mood markers	mood designated proposition	ξ
language in use	a communication act	$i : \underline{\xi}$
expression of the sender's intentional state(s)	the sender's intentional state (propositional attitude) expressed in a communication act	$\mathrm{Int}_i\varphi \in \Psi(i : \underline{\xi})$
alteration of the receiver's intentional state(s)	an effect of a communication act on the receiver's intentional state	$[i : \underline{\xi}]\mathrm{Int}_j\varphi$
production	an effect of a communication act on the deontic value of an actor's communication act or intentional state	$[i : \underline{\xi}]\Delta_j\varphi$

Definition (Representational language and language in use)

Let $\mathcal{L}_r$ be a language in which descriptions of the objective, subjective and social world can be given, and let $\varphi \in \mathcal{L}_r$.

$$\mathcal{L}_{\text{use}} \qquad \xi ::= \cdot\varphi \mid !\varphi \mid \cdot\varphi_1 \rightarrow !\varphi_2 \mid !\varphi_1 \rightarrow \cdot\varphi_2 \mid \xi\xi$$

The symbols $\cdot$ and ! are indicative and imperative sentential mood markers. Combined moods are allowed such as "conditional imperative": $\cdot\varphi_1 \rightarrow !\varphi_2$. Mood designated propositions are said to belong to the language in use. We say that $\mathcal{L}_r$ is the propositional basis of $\mathcal{L}_{\text{use}}$.

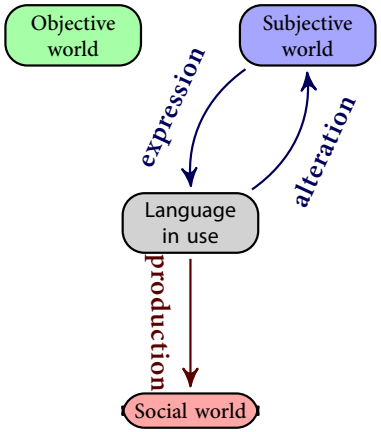


Definition (The descriptive language $\mathcal{L}_{\text{effect}}$)

Let G be the set representing a communication group and $i, j, \ldots$ be members of G. Let $\xi \in \mathcal{L}_{\text{use}}$, and let $\varphi \in \mathcal{L}'_r$ for some representational language possible different from the propositional basis of $\mathcal{L}_{\text{use}}$.

$$\mathcal{L}_{\text{pragmatics}} \quad \epsilon ::= \varphi \mid i : \underline{\xi} \mid \text{Int}_i\epsilon \mid \Delta_i\epsilon \mid \text{Int}_i\epsilon \in \Psi(i : \underline{\xi}) \mid [i : \underline{\xi}]\epsilon \mid \neg\epsilon \mid (\epsilon_1 \wedge \epsilon_2)$$

The expression $i : \underline{\xi}$ denotes a communication act performed by i using utterance ξ. The underlining corresponds to quoting. The symbol $\text{Int}_i \in \{\text{D}_i, \text{B}_i\}$ stands for modal operators of belief or desire of actor i. The expression '$\text{Int}_i\varphi$' means 'actor i has intentional state (mental state, propositional attitude) of the type Int with the content φ'. The symbol $\Delta_i \in \{\text{O}_i, \text{P}_i, \text{F}_i\}$ stands for modal operators of obligation, permission or prohibition for actor i. The expression '$\Delta_i\varphi$' means 'the state of affairs φ has deontic value of the type Δ for actor i'. The duality of obligation and permission operator is assumed to hold. The set $\Psi(i : \underline{\xi})$ is the set of intentional states of i expressed by communication act $i : \underline{\xi}$ (it corresponds to "sincerity conditions" of illocutionary logic). Ψ is function from communication acts performed by i to a subset of intentional states of i.



The language of pragmatics enables the description of preconditions and postconditions of language use.

Example

Representation of the objective world	Expression of the subjective world	Production of the social world	Alteration of the subjective world
i stands in the authority relation R to j regarding the field α and $\varphi \in \alpha$	i expresses an intentional state $\mathrm{Int}_i\varphi$ in communication act $i : \underline{\xi}$)	the sender's communication act $i : \underline{\xi}$ produces an obligation $\mathrm{O}_j\mathrm{Int}_j\varphi$ for the receiver j of sharing the intentional state expressed by the sender i	the receiver's intentional state is changed after the sender performs the communication act
$R(i,j,\alpha) \wedge \varphi \in \alpha$	$\mathrm{Int}_i\varphi \in \Psi(i : \underline{\xi})$	$[i : \underline{\xi}]\mathrm{O}_j\mathrm{Int}_j\varphi$	$[i : \underline{\xi}]\mathrm{Int}_j\varphi$

Properties of the model of communication

On the model

- The model represents the 'public communication'. A message sent by any member of the communication group reaches all members in the group. E.g., an e-mail sent to all members of a group G.
- It is presupposed that each member of the group understands the language in use in the same way concerning the attitudes expressed and in the stable fashion with respect to effects of use:
  - On the expressive side, each member agrees with any other on the attitude being expressed by a communication act. For all $i, j, s \in G$, $\mathrm{B}_i(\mathrm{Int}_s\varphi \in \Psi(s : \underline{\xi})) \leftrightarrow \mathrm{B}_j(\mathrm{Int}_s\varphi \in \Psi(s : \underline{\xi}))$.
  - On the side of effects of language use, beliefs regarding the effects of language use are stable: for all $i, j \in G$, $\mathrm{B}_i[j : \underline{\xi}]\varphi \leftrightarrow [j : \underline{\xi}]\mathrm{B}_i\varphi$. The effects of language use may differ from member to member (e.g., depending on the normative context of communication or the anterior state of the receiver). So, $[i : \underline{\xi}]\mathrm{B}_j\varphi$ does not imply $[i : \underline{\xi}]\mathrm{B}_k\varphi$ for $j \neq k$.

On the model

- The sufficient condition for the expression of a communication act is given by the general belief in all instances of the expression relation. Let $\mathrm{B}_G\varphi$ stand for 'for all $i \in G$, $\mathrm{B}_i\varphi$'. The sufficient condition: $\mathrm{B}_G(\mathrm{Int}_s\varphi \in \Psi(s : \underline{\xi})) \to \mathrm{Int}_s\varphi \in \Psi(s : \underline{\xi}))$.
- Norms of language use are restricted to a field, denoted by α, and identified with a subset of the language in use $\alpha \subseteq \mathcal{L}_{\mathrm{use}}$.
- The normative context which defines communication type is stable: for all $i, j \in G$, $\Delta_j[i : \underline{\xi}]\varphi \leftrightarrow [i : \underline{\xi}]\Delta_j\varphi$.
- Members of G are conscious agents, their own intentional states are introspectively accessible for them.

Normativity and collective intentionality

The logic of effects of language use has been revealed in the theory of Johan van Benthem and related group of authors and researchers at the global level. The essential formula of the theory has the form $[C]E$ and it describes the effect E of the communicative act C. The syntactic simplicity of the essential formula shows its high level of generality: the term C stands for any communicative act and the subformula E stands for any effect. Thus, the theoretical framework can accommodate the different ways of describing and explaining the effects of communicative acts:

– in terms of individual propositional attitudes or intentional states (such as beliefs and preferences), e.g., Benthem and Liu, 2014;

– in terms of collective intentionality (such as group knowledge), e.g., Ditmarsch et al., 2008.;

– in terms of deontic changes (such as linguistic commitments), e.g., Yamada, 2012.

Normativity and collective intentionality

It will be argued here that the essential formula $[C]E$ remains incomplete until the communication type κ is explicitly introduced. In a communication type κ it may be the case that $[C]E$, but in another communication type κ' the same needs not hold. So, the complete formula of communication act effect has the following form: 'in κ, $[C]E$'. The relativity of communicative effects with respect to the communication type does not preclude the possibility that some $[C]E$ communicative regularity holds generally, for any communication type and all actors.
For example, if $\perp \in Cn(\Psi(i : \underline{\xi_1, \ldots}) \cup \Psi(i : \underline{\xi_n}))$, then $[i : \underline{\xi_1, \ldots}]\mathrm{F}_i i : \underline{\xi_n}$ is the norm asking for the avoidance of expressing inconsistent intentional states, and it can be considered as a norm not dependent on the communication type.

Communication types as defined by normative contexts generally believed to hold

Normative context of communication

- Communication type κ is defined by norms of communication interaction. The general form of the schema of a norm of communication interaction is: $\mathrm{Int}_i\varphi \in \Psi(i:\underline{\xi}) \rightarrow \Delta_j[i:\underline{\xi}]\epsilon$.
- κ is a set of norms of communication interaction. Norms need not be the same for all members of the group. For example, some κ' may include (i) the obligation of agent b to share the attitudes expressed by agent a, but the converse need not hold, (ii) a may be permitted not to share attitudes expressed by b. I.e., in κ' both (i) $\mathrm{Int}_a\varphi \in \Psi(a:\underline{\xi}) \rightarrow \mathrm{O}_b[a:\underline{\xi}]\mathrm{Int}_b\varphi$ and (ii) $\mathrm{Int}_b\varphi \in \Psi(b:\underline{\xi}) \rightarrow \mathrm{P}_a[b:\underline{\xi}]\neg\mathrm{Int}_a\varphi$ hold.

The mechanism of communication

- The existence of the general belief in the expression conditions of language use.
- The existence of set of norms of communicative interaction.
- The general belief that a particular set of norms (of obligations and permissions) of communicative interaction is in force.
- The general belief that obligation norms are being observed.

Universal strong trust or authority norm of communicative interaction

The following norm deserves special attention for several reasons. The variants of it have been discussed in the literature. It can provide an explanation for the formation of collective intentionality.

> *Linguistically expressed attitudes of one actor ought to be shared by every actor in the communication group.*

Definition (Universal strong trust or universal authority norm)

Let G be a communication group. For all $\xi \in \alpha \subseteq \mathcal{L}_r$ and for all $i, j \in G$

$$\mathrm{Int}_i\varphi \in \Psi(i\colon \underline{\xi}) \;\rightarrow\; \mathrm{O}_j[i\colon \underline{\xi}]\mathrm{Int}_j\varphi\,. \qquad \text{(ust)}$$

The norm has two plausible readings. In terms of trust, the receiver j ought to trust the sender i. In terms of authority, the sender i is an authority for j.

Trustful communication type

Definition

The communication in G is trustful iff

– there is the general belief that the norm of universal strong trust is in force:

$$\text{for all } i_{\in G}, j_{\in G}, \xi_{\in \alpha}: \ \mathrm{Int}_i\varphi \in \Psi(i{:}\ \underline{\xi}) \ \rightarrow \mathrm{B}_G(\ \mathrm{O}_j[i{:}\ \underline{\xi}]\mathrm{Int}_j\varphi\ )$$

– there is the general belief that the norm of universal strong trust is being observed:

$$\text{for all } i_{\in G}, j_{\in G}, \xi_{\in \alpha}: \ \mathrm{Int}_i\varphi \in \Psi(i{:}\ \underline{\xi}) \ \rightarrow \mathrm{B}_G(\ \mathrm{O}_j[i{:}\ \underline{\xi}]\mathrm{Int}_j\varphi \ \rightarrow \ [i{:}\ \underline{\xi}]\mathrm{Int}_j\varphi\ )$$

Corollary

In the trustful communication it is generally believed that an intentional state, if expressed by a group member, will be shared by everybody.

$$\textit{for all } i_{\in G}, j_{\in G}, \xi_{\in \alpha}: \ \mathrm{Int}_i\varphi \in \Psi(i{:}\ \underline{\xi}) \ \rightarrow \mathrm{B}_G(\ [i{:}\ \underline{\xi}]\mathrm{Int}_j\varphi\ )$$

Two special cases

ust-norm applied to the sender: $i = j$

Universal strong trust norm applied to the sender herself yields the *norm of sincerity*:

> *The sender ought to have the attitudes that have been linguistically expressed by her.*

If $\mathrm{Int}_i\varphi \in \Psi(i\colon \underline{\xi})$, then $\mathrm{O}_i[i\colon \underline{\xi}]\mathrm{Int}_i\varphi$ for any $i \in G$. (Norm of sincerity)

ust-norm applied to a sender-receiver pair: $i \neq j$

Universal strong trust norm applied to a sender-receiver pair yields the *norm of mutual trust*:

> *The receiver ought to have the attitudes that have been linguistically expressed by the sender.*

If $\mathrm{Int}_i\varphi \in \Psi(i\colon \underline{\xi})$ and $j \neq i$, then $\mathrm{O}_j[i\colon \underline{\xi}]\mathrm{Int}_j\varphi$. (mutual trust norm)

Some axioms and the rudimentary semantics for the description language of language use effects

Rudimentary semantics

- Denote by M, w a point w in a relational structure M.
- Associate with each communication act $[i : \underline{\xi}]$ an operation that transforms structure M into structure $M|i\colon \underline{\xi}$. There are different ways to transform a relational structure, the eliminative (link cutting, point erasing) and the additive way. The effects of language use are being modelled as changes of relational structures.

Provisional definitions

- $M, w \vDash [i\colon \underline{\xi}]\varphi$ iff $M|i\colon \underline{\xi}, w \vDash \varphi$.
- $M, w \vDash \neg[i\colon \underline{\xi}]\varphi$ iff $M|i\colon \underline{\xi}, w \nvDash \varphi$.
- $M, w \vDash \mathrm{B}_i\varphi$ iff $M, v \vDash \varphi$ for all v such that $R_{\mathrm{B}_i} wv$.
- $M, w \vDash \mathrm{O}_i\varphi$ iff $M, v \vDash \varphi$ for all v such that $R_{\mathrm{O}_i} wv$.

A selection of axioms and rules of inference

Axioms (A selection.)

- $\neg[i\colon \underline{\xi}]\varphi \leftrightarrow [i\colon \underline{\xi}]\neg\varphi$
- $\mathrm{B}_i[j\colon \underline{\xi}]\varphi \leftrightarrow [j\colon \underline{\xi}]\mathrm{B}_i\varphi$
- $\mathrm{O}_i[j\colon \underline{\xi}]\varphi \leftrightarrow [j\colon \underline{\xi}]\mathrm{O}_i\varphi$
- *Axioms of* $K45$ *doxastic logic.*
- *Axioms on transparency of intentional states:* $\mathrm{Int}_i\varphi \to \mathrm{B}_i\mathrm{Int}_i\varphi$, *and* $\neg\mathrm{Int}_i\varphi \to \mathrm{B}_i\neg\mathrm{Int}_i\varphi$.

A rule:

$$\frac{\vdash [i\colon \underline{\xi}]\varphi_1 \qquad \vdash \varphi_1 \to \varphi_2}{\vdash [i\colon \underline{\xi}]\varphi_2}$$

Operator switch axiom

Proposition

Logical axioms are sound with respect to the provisional semantics.

Proof.

An exemplar proof showing that the left side and right side mean the same..

- $M, w \vDash \mathrm{B}_i[j\colon \underline{\xi}]\varphi$ iff
- $M, v \vDash [j\colon \underline{\xi}]\varphi$ for all v such that $R_{\mathrm{B}_i} wv$ iff
- $M|j\colon \underline{\xi}, v \vDash \varphi$ for all v such that $R_{\mathrm{B}_i} wv$.

- $M, w \vDash [j\colon \underline{\xi}]\mathrm{B}_i\varphi$ iff
- $M|j\colon \underline{\xi}, w \vDash \mathrm{B}_i\varphi$ iff
- $M|j\colon \underline{\xi}, v \vDash \varphi$ for all v such that $R_{\mathrm{B}_i} wv$.

□

The phenomenon of social ontology: making it the case by believing it to be the case

Proposition (True by belief)

If everyone in a communication group consistently believes that the universal norm of strong trust is being observed, then the norm is being observed.

$$\textit{For all } i_{\in G}, j_{\in G}, \xi_{\in \alpha}: \quad \mathrm{B}_G\,(\mathrm{O}_j[i{:}\,\underline{\xi}]\mathrm{Int}_j\varphi \rightarrow [i{:}\,\underline{\xi}]\mathrm{Int}_j\varphi) \rightarrow [i{:}\,\underline{\xi}]\mathrm{Int}_j\varphi\,. \quad (1)$$

Proof.

Reductio. Let $\mathrm{O}_j[i{:}\,\underline{\xi}]\mathrm{Int}_j\varphi$. Suppose that j has consistent beliefs but violates the norm. Thus, after the act $i{:}\,\underline{\xi}$, the agent j does not have the required intentional state, $\neg\mathrm{Int}_j\varphi$. Assuming the introspective accessibility of intentional states, the actor j is aware of her own intentional state that violates the norm, $\mathrm{B}_j\neg\mathrm{Int}_j\varphi$. On the other hand, the actor has norm observance belief and, therefore, j believes that she has the required state, $\mathrm{B}_j\mathrm{Int}_j\varphi$. So, j does not have consistent beliefs. Therefore, *the communication norm of universal trust generally and consistently believed to be observed is in fact observed.* □

A comparison with David Lewis: similarities

- Lewis's proposal (from "Languages and Language", 1975) is that *the convention whereby a population P uses a language $\mathcal{L}$ is a convention of truthfulness and trust in $\mathcal{L}$*. The variant element in the "convention of truthfulness and trust in $\mathcal{L}$" is the language being used: if $\mathcal{L}$ and $\mathcal{L}'$ that are equally satisfactory with respect to communication needs of the population P, then truthfulness and trust in $\mathcal{L}'$ is an alternative to truthfulness and trust in $\mathcal{L}$.
  What is not conventional, according to Lewis, is the form of the convention of truthfulness and trust.
- The term 'norm' can be used instead of the term 'convention' since norms are violable regularities, commonly believed to prevail, and they serve the social coordination function. So, our "norm of universal strong trust" corresponds to Lewis' "convention of truthfulness and trust in $\mathcal{L}$".

Non-conventional elements in the Lewisian concept of convention

- According to Lewis it is the language being used that provides the element of alternativeness necessary in any convention. Nevertheless, the form remains invariant. In our conceptualization the Lewisian convention of language use is understood as the *ust*-norm.
- Let the alternativeness element be denoted by $\star$. We obtain the following non-conventional form:

$$\mathrm{Int}_i\varphi \in \Psi(i\colon \underline{\star}) \rightarrow \mathrm{O}_j[i\colon \underline{\star}]\mathrm{Int}_j\varphi\,. \qquad \text{(ust-form)}$$

  In our approach, the ust-form has alternatives.
- The Lewisan approach does not admit different types of communication. Nevertheless, there is no reason preventing the existence of diversity of communicative interaction types. On the contrary, it is an empirical fact that there are communication types where the trust relation is not universal, non-symmetric, or completely absent.

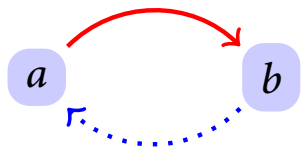
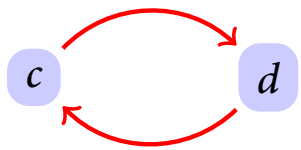
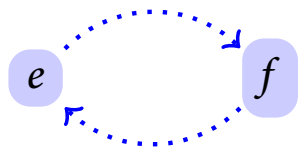
Communication types: trustful, argumentative, and unequal

Communication types

	communication type, $\mathrm{B}_G(\kappa)$	social relation	normative context, κ
A	trustful	egalitarian	for all $i_{\in G}, j_{\in G}, \xi_{\in \alpha}$: $\mathrm{Int}_i\varphi \in \Psi(i\colon \underline{\xi}) \rightarrow \mathrm{O}_j[i\colon \underline{\xi}]\mathrm{Int}_j\varphi$
B	permissive or argumentative	egalitarian	for all $i_{\in G}, j_{\in G}, \xi_{\in \alpha}$: $\mathrm{Int}_i\varphi \in \Psi(i\colon \underline{\xi}) \rightarrow \mathrm{P}_j[i\colon \underline{\xi}]\neg\mathrm{Int}_j\varphi$
$\overline{A}\,\overline{B}$	unequal varieties	non-egalitarian	for some $i_{\in G}, j_{\in G}, \xi_{\in \alpha}$: $\mathrm{Int}_i\varphi \in \Psi(i\colon \underline{\xi}) \wedge \mathrm{P}_j[i\colon \underline{\xi}]\neg\mathrm{Int}_j\varphi$ and for some $i_{\in G}, j_{\in G}, \xi_{\in \alpha}$: $\mathrm{Int}_i\varphi \in \Psi(i\colon \underline{\xi}) \wedge \mathrm{O}_j[i\colon \underline{\xi}]\mathrm{Int}_j\varphi$

Minimal, 2-agent examples

Table : The blue dotted arrow denotes the permission norm of communicative interaction; the arrow points to the agent who is permitted not to share some intentional states expressed by the other agent. The red arrow denotes the obligation norm of communicative interaction; the arrow points to the agent who is obliged to share all intentional states expressed by the other agent.

Unequal type	Trustful	Argumentative
		

Philosophies of language use

Philosophies of language

Expressive philosophy of language

Illocutionary logic. According to Searle and Vanderveken linguistic commitments run parallel and are inherited from rational commitments of expressed intentional states. Differences from illocutionary logic to our approach:

– "one-agent logic" vs. "social logic",

– linguistic normativity inherited from requirements of rationality vs. normativity of language use relative to normative context of a communication type.

Philosophies of language

Normative philosophy of language

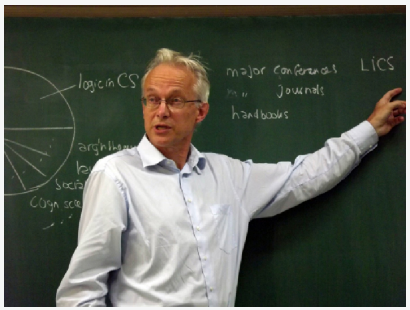
Normative pragmatics. According to Brandom, the use of language reshapes the distribution of deontic values over possible communicative acts of agents, their linguistic commitments and entitlements. Each communicative act carries a class of deontically valued communicative acts. Relations between classes is the basis of the logic of language in use. Differences from normative pragmatics to our approach:

– in our approach the class of linguistic entitlements is not fixed but relative to a communication type,

– in our approach the class of linguistic commitments and entitlements constitutes only a part of deontic effects of language use.

Philosophies of language

Logico-structural conception of language



Dynamic logic. Van Benthem has given the syntax and semantics for the formal language appropriate for the analysis of how language creates social world. Differences from dynamic logic to our approach:

– in our approach normative contexts are made explicit,

– the phenomena studied in dynamic logic typically presuppose the trustful communication type.

Although the philosophy of language of the dynamic logic has not been made explicit in a full sense, some of its traits can be delineated. The language being used necessarily has a logical structure (cf. Heidegger's claim "logic is the essence of language"). This structure gets projected to rational requirements for intentional states and to effects of language use, but the logic of language use is not reducible to the basic structure of language being used. There are phenomena, such as 'Moore's paradox', interaction regularities, etc. , whose logic becomes visible only at the social level.

Production of social world

The term 'production' seems too strong since the language use (aside the norm giving activity) typically does not create norms. What language use does is an exploitation of the pre-existing normative context. Consider a normative context having an instance of strong trust relation from j to i, or, which is the same, the authority relation from i to j: if $\mathrm{Int}_i\varphi \in \Psi(i : \underline{\xi})$, then $\mathrm{O}_j[i : \underline{\xi}]\mathrm{Int}_j\varphi$. If communication act $i : \underline{\xi}$ has not been performed, it might be the case that j has no obligation to share the intentional state that would be expressed by this act. Nevertheless, if the act $i : \underline{\xi}$ is performed, the obligation of attitude sharing arises for j. This transition from anterior obligation $\mathrm{O}_j[i : \underline{\xi}]\mathrm{Int}_j\varphi$ to posterior $[i : \underline{\xi}]\mathrm{O}_j\mathrm{Int}_j\varphi$ can be compared to the transition from the wide scope conditional obligation $\mathrm{O}_j(i : \underline{\xi} \to \mathrm{Int}_j\varphi)$ to the narrow scope conditional obligation $i : \underline{\xi} \to \mathrm{O}_j\mathrm{Int}_j\varphi$, the latter of which shows that if the act is performed, then the obligation will be produced. But this is not a norm promulgation or proclamation. This is a peculiarity of the normativity of language use. The satisfaction of the antecedent of the conditional is not something that happens to an agent, but something that an agent can produce at will and thus produce/release the obligation from the consequent given that an appropriate normative context is in force, i.e., believed to hold.

Some applications

Applicative methodology

- The usability of the here presented conceptual framework has been preliminary tested (and accordingly revised) in several problem areas in logical philosophy or philosophical logic including:
  - the problem of building a systematic typology of communication norms,
  - the problem of gaining knowledge through communication and limitations imposed by particular communication types to the possibility of revising collective intentionality,
  - the problem of determination of the source of second-order norms for the norm giving activity.
- The further research will be devoted to the development of the full formal system and its application to the problems mentioned above.

An excerpt from *Normativity in Communication*, with G. Bašić

Any norm of action assigns a deontic value to a norm-subject's act under certain conditions, rendering it obligatory, forbidden or permitted for the norm-subject to perform. Its general logical form is: if condition C obtains, then actor i's seeing it to that φ has some deontic value Δ_i (obligatory, forbidden or permitted for i).

$$\text{If } C, \text{ then } \Delta_i \text{stit}(\varphi) \qquad \text{(Norm of action)}$$

The norm of communicative action is a kind of norm of action where deontic value is assigned to the norm-subjects act of language use (communicative act). The actor is the sender who sees to it that a certain sentence ξ is produced by her, i stit$(i : \underline{\xi})$. In its general form, the norm of communicative action assigns a deontic value to the communicative act under some specified condition C. Its form is obtained by specialization from the norm of action. In the formula below

$$\text{If } C, \text{ then } \Delta_i(i : \underline{\xi}) \qquad \text{(Norm of communicative action)}$$

A special case occurs when the norm precondition C is the sender's own anterior discourse, yielding thus the type of norm which connects anterior and posterior language use.

$$\text{If } i : \underline{\xi \ldots}, \text{ then } \Delta_j(j : \underline{\xi'}) \qquad \text{(Norm of language use)}$$

It is visible from the formula that the antecedent part of norm of language use does not mention any mental state or social relation. Therefore, it displays a pure regularity of pragmatics. The dynamic logic notation is convenient for representing regularity and succession. So, instead of propositional 'if …, then …' statement, the agentive sentential form expresses the same idea by 'always after the act … it is the case that …', or 'the act … regularly (normally) produces effect …'.

$$[i : \underline{\xi \ldots}]\Delta_j(j : \underline{\xi'}) \qquad \text{(Norm of language use in act-effect notation)}$$

Continued

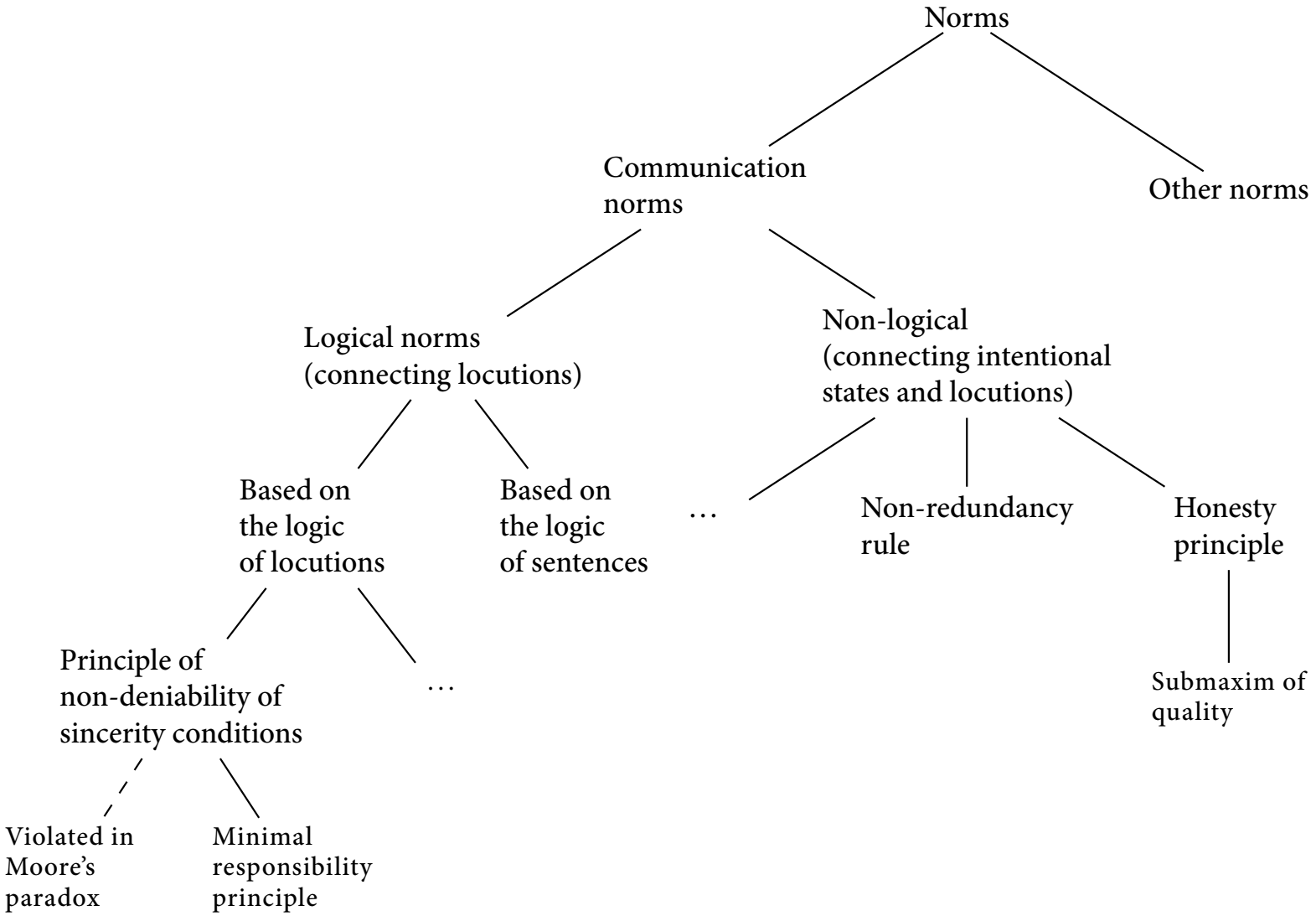


Figure : A typology of norms with selected examples.

Conclusions from *On Resolution of Communicative Incoherence*

- The non-conservative resolution of communicative incoherence includes the change in communicative authority relations. Thus, social dynamics is a condition of possibility of logical dynamics in reconstruction of collective intentionality.
- The transition from α-type to β-type configuration is a rational socio-logical revision form. The failure of communication as "informational exchange" is replaced with argumentation, which if successful, restores the collective intentionality and enables the restoration of α-type.
- On the other hand, the conservative resolution of communicative incoherence has many obstacles and cannot be considered adequate for the construction of collective intentionality in the community of scientists and philosophers.
- The communicative authority configuration of the community of scientists and philosophers ought not be of stable γ-type, but, rather, should have a transformative structure of α–β–α–… transitions.[1]

[1] Max Planck's famous dictum *Science advances one funeral at a time* shows that γ-type or

Appendix: a consequence for the philosophy of science

- The project of finding distinguishing properties of scientific discourse within the syntax and semantics of its language (like the one conducted within the theoretical framework of logical empiricism) is nowadays generally regarded to be unsuccessful.
- According to the analysis presented here it is within the semiotic dimension of pragmatics where the "demarcation line" between science/philosophy/ and non-science/philosophy/ ought to be sought for.
- It is the type of reconstruction that defines the scientific/philosophical/ discourse as the one where the knowledge is built within a non-conservative transformative structure of α–β–α–… types of equality distributions of communicative authority..

An excerpt from *Von Wright's legacy: The turn towards logical pragmatics*

STANDARD DEONTIC LOGIC	SET-THEORETIC APPROACH	SECOND-ORDER NORMS
theorems of standard deontic logic	perfection properties of the normative system	obligations of the norm-giver in the prescriptive use of language[2]
Example: internal and external consistency		
$O\varphi \to \neg F\varphi$	$\{\varphi, \neg\varphi\} \notin \mathcal{N}$	$[g : \underline{!O_r\varphi}]\mathbf{F}_g\ g : \underline{!F_r\varphi}$
$O\varphi \to \neg P\neg\varphi$	$\mathcal{N} \cap \overline{\mathcal{N}} = \varnothing$	$[g : \underline{!O_r\varphi}]\mathbf{F}_g\ g : \underline{!P_r\neg\varphi}$

[2] g := norm-giver; r := norm-recipient; $\mathbf{F}_g$:= it is forbidden for the norm giver that …; $g : \underline{!O_r\varphi}$:= the norm giver has used the sentence $O_r\varphi$ in the prescriptive way; $[C]E$:= after C it is the case that E.